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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/352,494	07/13/1999	KEVIN E. BREHMER	03588.P002	2351

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EXAMINER

HO, TUAN V

ART UNIT	PAPER NUMBER
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2612

DATE MAILED: 02/19/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/352,494

Applicant(s)

BREHMER ET AL.

Examiner

TUAN HO

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13-18 is/are allowed.
- 6) ☒ Claim(s) 19 and 29 is/are rejected.
- 7) ☒ Claim(s) 20-28 and 30 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 July 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4 and 6.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

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1. Applicant's election of Group II, claims 13-30 with traverse in Paper No. 9 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 19 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (US 2002/0101528) in view of Horii (US 6,597,399).

With regard to claim 19, Lee et al discloses in Fig. 4, a CMOS active pixel image sensor that comprises the plurality of photo sensors (pixel array 102 includes a plurality of photo sensors, (paragraph [0038]), pair of column address and row address decoders (pixel addressing circuits 114 [0038]), number of signal conditioning circuits (correlated double sampling circuits 116 reduce noise in the signal [0039]; noted that each

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of CDS circuit is coupled to a pixel column so as to receive a pixel image signal from the column and since the signal is generated without a level of noise reduced, the CDS circuits are considered as signal conditioning circuits where image signals are conditioned by reducing noise [0039]), number of analog-to-digital converters (ADC circuits 118 [0039] are coupled to the CDS circuits and process the signals in parallel), except for a pixel processor.

Lee et al does not explicitly disclose any signal processor to process digital pixel signals into video signals so as to be displayed on a monitor and be stored in a memory of a digital camera. However, Horii teaches using signal processing circuit 17 that processes digital signals into video signal for displaying or storing in a memory.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the signal processing circuit of Horii in the camera system of Lee et al so as to process the digital pixel signals into video signal in order to display or store in a memory and thereby to improve the versatility of the Lee camera system.

With regard to claim 29, Lee et al in view of Horii discloses the same subject matter as discussed with respect to

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claim 19, except for the pixel processor is monolithically integrated with the photo sensor.

Lee et al in view of Horii does not disclose any pixel processor is monolithically integrated with the image sensor. However, Lee et al states that "A the electronic control elements and signaling circuits are being integrated onto a single piece of silicon. This simplifies camera system design" [0044].

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include all the circuits of Lee et al in view of Horii in an integrated single piece of silicon so as to simplify the camera design of Lee et al in view of Horii.

3. Claims 13-18 are allowed.

The prior art of record fails to suggest or disclose a method for facilitating high signal throughput of an improved image sensor comprising a plurality of photo sensor configured in a two-dimensional area, comprising reading out signal from the plurality of photo sensor row by row in parallel to respective column buses, the column buses coupled to a double sampling circuit and a programmable amplifier; conditioning the charge signals in the programmable gain amplifier in accordance with double sampling circuit before the charge are digitized to produce pixel signals.

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4. Claims 20-28 and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Clark discloses solid state image sensor that includes a digital processing circuit.

Chen et al discloses a CMOS area array that comprises an integrated imager circuit.


Fossum et al discloses a CMOS pixel sensor that includes a conditioning circuit.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TUAN HO whose telephone number is (703) 305-4943. The examiner can normally be reached on Mon-Fri from 7AM to 4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, WENDY GARBBER, can be reached on (703) 305-4924. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.



TUAN HO

Primary Examiner

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